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A. F. Lindemann observed internal contact by

	h	m	s
L.'s watch at	3	58	15
Watch error			−28·6
G.M.T. =	3	57	46·4

15 seconds later separation quite distinct; $4^{h}\ 10^{m}$ G.M.T. quite cloudy.

The white spot was not seen, although looked for directly, without success, by both observers.

On the late Transit of Mercury. By the Rev. S. J. Johnson, M.A.

November 10 was mild here, with frequent showers, one of which ended too slowly at the time of ingress, when the Sun came out at $3^{h}\ 58^{m}\ 12^{s}$. The internal contact of *Mercury* with the Sun seemed to have taken place hardly more than 5 seconds. This would be later than the predicted time by about $\frac{3}{4}$ minute. The disc of the planet was jet black. It seemed to resemble a shot on a bright background. No halo was perceptible, though it was carefully looked for. By way of trial, I took some micrometer measurements of diameter, the mean of which came out $8''\cdot 8$; quite as near as could be expected, considering the Sun's limb was boiling and the planet very tremulous. The transit was visible for exactly twenty minutes, when the Sun disappeared behind a small black cloud. No power higher than 50 on a $3\frac{1}{4}$-inch telescope could be employed.

Melplash Vicarage, Bridport:
December 8.

Observations of the Transit of Mercury, 1894 *November* 10, *made at Grahamstown, Cape of Good Hope.* By L. A. Eddie.

The sky was clear in the vicinity of the Sun as the moment approached for external contact at ingress, though there were many light clouds in the east, and lateral strata of fine cirri clouds lying on the western horizon and extending to a little below the position of the Sun. The air was warm and calm, but a low barometer bespoke that a change was at hand, which was already indicated by an unsteady condition of the atmosphere around the Sun's periphery, causing a constant succession of rapid undulations, which I feared would intercept the detection of external contact. There were seven conspicuous sun-spots on the solar disc, in three groups of two spots each and one single one just within the western border. The instrument used was a 3-inch refractor, powers 32 and 120.

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Notwithstanding the scollops around the Sun's disc, I was fortunate enough to detect, as near as possible, the very earliest contact of *Mercury* with the Sun's limb at the exact point where I was expecting it, having selected this point as being about the required 98° from the north. I suddenly caught the faintest enlargement, as it were, of one of the undulations, and called to my assistant with the timepiece, who recorded $5^h\ 25^m\ 38^s$. It was impossible to bisect the planet with any degree of accuracy, owing to the atmospheric undulations encroaching upon this tiny disc and diminishing it. I was therefore a little late with this estimation, which was recorded at $5^h\ 26^m\ 58^s$. The estimated time of internal contact was also retarded, the planet seeming to adhere to the periphery of the Sun, though no black drop phenomenon was apparent, the unsteady atmosphere, resulting in the agitation of the Sun's limb, alone seeming to prevent the earlier detection of the completion of the planetary circle, and thus causing a lagging at internal contact. The time recorded for this event was $5^h\ 27^m\ 38^s$; but as soon as the planet had fully freed itself from contact, I could perceive that it should have been recorded some seconds earlier.

I could not trace the remainder of the planet's disc outside the Sun's limb after it had begun to enter upon his face, as I was able to do with *Venus* during transit in 1882; but this might have been owing to the smallness of *Mercury* and the unsteady definition. When fully on, the planet appeared to be surrounded by a dusky ring of grey light, in depth about one-third of the diameter of the planet itself, and somewhat less brilliant than the general solar surface.

No bright spots were detected within the planet's disc, but the latter appeared to me at times to be of a deep chocolate brown rather than black.

When the Sun had descended behind the bank of cirri clouds it closely resembled *Jupiter*, the transparent clouds forming the belts, and the planet *Mercury* a satellite in transit.

The Sun set at $6^h\ 8^m$, Cape uniform time, about 43 minutes after *Mercury* had entered his disc; the planet had then advanced about one-seventh of the chord to be travelled across the face of the Sun.

Grahamstown, longitude 26° 31′ 18″ E.; latitude 33° 19′ 7″ S.

	Cape uniform time.				Aperture. inches.	Power.
	d	h	m	s		
External contact	10	5	25	38	3	32
Planet bisected	10	5	26	58	3	32
Internal contact	10	5	27	38	3	32

Grahamstown:
1894 *November* 12.

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Observations of the Transit of Mercury on 1894 *November* 10.

By Lieutenant Basil Taylor, R.N.

(*Communicated by the Secretaries.*)

The first external contact is very approximate, as I did not know exactly the point of the Sun's limb to watch.

The first internal contact is timed as accurately as possible, but may be slightly too early through my inexperience in observation.

I was unable to see the Sun at the time of egress, as it was obscured by heavy clouds.

The instrument employed was a 2·25-inch refractor with power of 80; the telescope mounted on a tripod. The times were taken with two watches, which were compared shortly before with three chronometers on board this ship: the comparisons are given below.

Comparisons were also taken of the same chronometers after the observations, which gave the same errors.

Place of observation: Lat. 32° 19′ 10″ N., Long. 64° 49′ 15″ W.

	Times by (i) h m s	Times by (ii) h m s
External contact at Ingress	23 36 30	(?)
Internal contact at Ingress	23 37 35	23 38 7

	h m s	
Error of (i) on G.M.T.	4 19 34·5	slow.
Error of (ii) on G.M.T.	4 19 1·5	slow.

Comparisons of watches (i) *and* (ii) *with Chronometers* A, B, *and* D.

	h m s		h m s
A.	2 26 0	A.	2 26 30
(i).	9 36 26	(ii).	9 37 29·5

Error of A. on G.M.T. $0^h\ 29^m\ 59^s$ fast.

	h m s		h m s
B.	12 35 0	B.	12 35 30
(i).	9 37 41	(ii).	9 38 44

Error of B. on G.M.T. $1^h\ 22^m\ 15^s$ slow.

	h m s		h m s
D.	3 30 30	D.	3 31 0
(i).	9 40 13	(ii).	9 41 17

Error of D. on G.M.T. $1^h\ 30^m\ 41^s$ fast.

The errors of the chronometers were ascertained by observations of the Sun with sextant and artificial horizon on various dates during the month of October.

H.M.S. "Blake," North American Station:
1894 *November* 11.